

What is claimed is:

1. [CANCELED]
2. [CANCELED]
3. [CANCELED]
4. [NEW] A bicycle crank and pedal assembly with a self-extending and retracting crank arm; said assembly comprising:
 - a crank arm with a plate cavity, a bar track, and two slits;
 - a bar inside said bar track in said crank arm; said bar being fixed to a pedal spindle at one end; and
 - a plate shaft; said plate shaft being fixed to a plate at one end and to a pedal at the other end; said plate being inside said plate cavity in said crank arm.
5. [NEW] The bicycle crank and pedal assembly of claim 4, wherein said plate shaft is partially inside a cylindrical hole along the axis of said pedal spindle; wherein the axes of said pedal spindle and said plate shaft are co-located; wherein said slits in crank arm restrict movements of said plate shaft and said pedal spindle to movements closer to or farther away from the crank axis.
6. [NEW] The bicycle crank and pedal assembly of claim 5, wherein the axis of said pedal spindle is spaced apart and parallel to the rotation axis of said crank; wherein the perimeter surface of the said plate cavity operatively cooperates with said plate to change the distance between the axes of said crank and said pedal spindle during cycling.
7. [NEW] The bicycle crank and pedal assembly of claim 6, wherein the perimeter surface of said cavity operatively cooperates with said plate to increase the distance between the axes of said crank and said pedal spindle from a minimum value to a maximum value in the first half of the power down stroke and keep said

distance at said maximum value in the second half of the power down stroke.

8. [NEW] The bicycle crank and pedal assembly of claim 6, wherein the perimeter surface of said cavity operatively cooperates with said plate to decrease the distance between the axes of said crank and said pedal spindle from said maximum value to said minimum value in the first half of the return upstroke and keep said distance at said minimum value in the second half of the return upstroke.
9. [NEW] The bicycle crank and pedal assembly of claim 4, wherein the axis of said pedal spindle is spaced apart and parallel to the rotation axis of said crank; wherein the perimeter surface of the said plate cavity operatively cooperates with said plate to change the distance between the axes of said crank and said pedal spindle during cycling.
10. [NEW] The bicycle crank and pedal assembly of claim 9, wherein the perimeter surface of said cavity operatively cooperates with said plate to increase the distance between the axes of said crank and said pedal spindle from a minimum value to a maximum value in the first half of the power down stroke and keep said distance at said maximum value in the second half of the power down stroke.
11. [NEW] The bicycle crank and pedal assembly of claim 9, wherein the perimeter surface of said cavity operatively cooperates with said plate to decrease the distance between the axes of said crank and said pedal spindle from said maximum value to said minimum value in the first half of the return upstroke and keep said distance at said minimum value in the second half of the return upstroke.
12. [NEW] The bicycle crank and pedal assembly of claim 4, wherein said pedal spindle is a solid rod; wherein said plate shaft has a cylindrical hole along the axis; wherein said pedal spindle is partially inside said cylindrical hole; wherein said pedal spindle and said plate shaft have co-located axes.